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The nature and impact of the market forecasting errors in the Federal funds futures market



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ABSTRACT

In this paper we examine the impact of the forecasting errors arising from a monetary policy shock arising in the Federal funds rate market. Our empirical results indicate that forecasting errors in the Federal funds futures market do have implications for the asset market's natural price discovery process, since expectations in this market affect long term interest rates and inflation. We also find that the price discovery process may be exacerbated if the policy transmission mechanism is more pronounced under a transparency objective because of the negative feedback loop mechanism. The results further show that the aggregate demand and inflation expectations channels appear to be much more pronounced under the Bernanke regime than Greenspan leading to a much stronger policy transmission. In fact a policy tightening through both channels would have a visibly stronger deflationary and employment impact under Bernanke relative to Greenspan.

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1. Introduction

In this paper we examine the nature and impact of forecasting errors arising from a policy shock in the Federal funds futures market² on price discovery, inflation transmission and the aggregate demand

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² The Federal funds futures market was started in late 1988 by the Chicago Board of Trade which later merged with the Chicago Mercantile Exchange (now a part of CME group). The Federal funds futures contract is the most widely used futures

channels. All three work to reinforce each other through the feedback loop mechanism to ensure the smooth functioning of financial markets (see [Bernanke, Gertler, & Gilchrist, 1996](#) for more on the financial accelerator effect). The use of Fed funds futures derivative contracts has grown remarkably over the last few years. While market participants may use these contracts to hedge interest rate, asset price risk and to speculate on future interest rate movements, the Federal funds futures market also serves the important role of revealing market participants' expectation of changes in FOMC policy (see [Bauer, Eisenbeis, Waggoner, & Zha, 2006](#)). These expectations of market participants play an important role in determining asset prices and economic growth. For instance, [Wang and Mayes \(2012\)](#) investigated the response of stock prices to unexpected monetary policy announcements for New Zealand, Australia, the United Kingdom and the euro area. They found that during the 2007/2009 financial crisis, UK and euro zone stock indices responded positively to unexpected domestic interest rate changes, as surprise interest rate changes during this period implied pessimism about existing economic conditions. To better understand the impact of forecasting errors on these expectations, we examined the effect of these errors in terms of the Greenspan versus Bernanke discretionary versus rules-based approach to monetary policy guidance on the target rate. The effective Fed funds rate which is the underlying asset of the fed funds futures contracts has varied greatly since the 1970s, oscillating between a low of near zero % over the last few years and an annualized peak of 19+ % in the 1980s; showing a great degree of variation in the Federal Reserve's main policy instrument which is usually adjusted in response to inflation expectations and economic output concerns. Given the sporadic changes in the underlying instrument over time, it seems natural to query whether the nature and impact of Federal funds futures forecasting errors shift the private sector's behavior and the effects of these expectations on the central bank's ability to transmit its policy directives via its typical demand and inflation policy channels. These considerations motivate the present paper.

Several well-known studies have documented the effectiveness of the Federal funds futures as a predictor (albeit a biased predictor) of the Federal funds rate target (see for instance [Gurkaynak, Sack, & Swanson, 2007](#); [Hamilton, 2009](#)). Unlike these earlier studies we examine the forecasting errors between the fed funds future rate and the actual effective fed funds rate so as to make inferences about the market's expectation of future changes in the fund rate.³ Similarly, a number of other related studies on the interplay between the market's expectations of the fed funds rate and the Federal Reserve Bank's communication policy underscores the importance of better communication (the transparency objective) by the Federal Reserve Bank to reduce financial market volatility (see [Plosser, 2014](#)). Former Chairman Bernanke, unlike a number of his contemporaries, has long advocated for greater transparency in the policy making process at the Federal Reserve Bank, articulating that greater transparency is a means to better synchronize the private sector behavior with policy-makers so as to minimize the risks of undesirable economic outcomes.⁴ In fact, at a recent 2014 Bank of Japan–Institute for Monetary and Economic Studies Conference, President of the Philadelphia Federal Reserve bank, Charles Plosser, suggested that “our overall effectiveness with forward guidance can only be assessed in the broader context of a central bank's overall approach to policy, including

contract that is directly tied to the fed funds rate. The contract price is based on the monthly average of the daily effective fed funds rate as published by the Federal Reserve Bank of New York. Thus, the fed funds futures should be considered as a market forecast of the monthly average of the daily fed funds rates, not the fed funds rates at the end of the month. If the market does not expect any changes in the fed funds rates during the delivery month, there are little difference between these two, but if the market expects some changes in the fed funds rate, in particular around the end of the delivery month, there must be non-negligible difference. From any given day of the year, the CME is willing to make fed funds futures contracts for the current month and the following twenty-four calendar months available for trade. In addition to these twenty-five contracts, the CME may list two additional contracts for the first two months of March, June, September, and December that follow the first twenty-five months. For example, a June 2012 contract could be listed as early as December 2009.

³ By looking at the term structure of implied rates on Federal funds futures, policymakers are able to assess market participants' expectations and understand what interest rate forecasts are implicit in other asset prices. Typically, 6-month and 12-month ahead forecasts often make two different kinds of errors. In one case, the market may expect a change in the target fed funds rate within 6 or 12 months and the market is disappointed because no change actually occurs. In the other case, the market may not expect a change in the target fed funds rate within 6 or 12 months and the market is disappointed because a change actually occurs.

⁴ *The Economic Synopsis*, No 9, 2012, Federal Reserve Bank of St. Louis.

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